

**CALIFORNIA DEPARTMENT OF WATER RESOURCES
OFFICE OF WATER USE EFFICIENCY**

**PROPOSITION 13 URBAN WATER CONSERVATION CAPITAL OUTLAY
GRANT APPLICATION**

LEAK DETECTION



PARADISE IRRIGATION DISTRICT

Submitted by:

Paradise Irrigation District
5325 Black Olive Drive
P.O. Box 2409
Paradise, CA 95967
Prepared by:

530.877.4971 [Fax 530.876.0483]
www.paradiseirrigation.com

**Consolidated Water Use Efficiency 2002 PSP
Proposal Part One:
A. Project Information Form**

1. Applying for (select one): ☒ (a) Prop 13 Urban Water Conservation Capital Outlay Grant
☐ (b) Prop 13 Agricultural Water Conservation Capital Outlay Feasibility Study Grant
☐ (c) DWR Water Use Efficiency Project
2. Principal applicant (Organization or affiliation): Paradise Irrigation District
3. Project Title: Leak Detection
4. Person authorized to sign and submit proposal:
- | | |
|-----------------|--------------------------------------|
| Name, title | <u>Ray Auerbach, Manager</u> |
| Mailing address | <u>P.O. Box 2409, Paradise, CA</u> |
| Telephone | <u>95967-2409</u> |
| | <u>530-877-4971</u> |
| Fax. | <u>530-876-0483</u> |
| E-mail | <u>rauerbach@paradiseirrigation.</u> |
| | <u>com</u> |
5. Contact person (if different):
- | | |
|------------------|---------|
| Name, title. | <u></u> |
| Mailing address. | <u></u> |
| Telephone | <u></u> |
| Fax. | <u></u> |
| E-mail | <u></u> |
6. Funds requested (dollar amount): \$99,000
7. Applicant funds pledged (dollar amount): \$303,000
8. Total project costs (dollar amount): \$402,000
9. Estimated total quantifiable project benefits (dollar amount): \$646,000
- Percentage of benefit to be accrued by applicant: 100
- Percentage of benefit to be accrued by CALFED or others: 0

**Proposal Part One:
A. Project Information Form (continued)**

10. Estimated annual amount of water to be saved (acre-feet): 143
- Estimated total amount of water to be saved (acre-feet): 4,587
- Over ____ years 20
- Estimated benefits to be realized in terms of water quality, instream flow, other: N.A.
11. Duration of project (month/year to month/year): 10/02 - 06/03
12. State Assembly District where the project is to be conducted: 3
13. State Senate District where the project is to be conducted: 1
14. Congressional district(s) where the project is to be conducted: 2
15. County where the project is to be conducted: Butte
16. Date most recent Urban Water Management Plan submitted to the Department of Water Resources: 1/10/01 Revised 9/5/01
17. Type of applicant (select one):
Prop 13 Urban Grants and Prop 13
Agricultural Feasibility Study Grants:
- ☐ (a) city
☐ (b) county
☐ (c) city and county
☐ (d) joint power authority
☒ (e) other political subdivision of the State, including public water district
☐ (f) incorporated mutual water company
- DWR WUE Projects: the above entities (a) through (f) or:
- ☐ (g) investor-owned utility
☐ (h) non-profit organization
☐ (i) tribe
☐ (j) university
☐ (k) state agency
☐ (l) federal agency
18. Project focus:
- ☐ (a) agricultural
☒ (b) urban

A. Project Information Form (continued)

19. Project type (select one):
Prop 13 Urban Grant or Prop 13
Agricultural Feasibility Study Grant
capital outlay project related to:

- ☒ (a) implementation of Urban Best Management Practices
- ☐ (b) implementation of Agricultural Efficient Water Management Practices
- ☐ (c) implementation of Quantifiable Objectives (include QO number(s))

- ☐ (d) other (specify)

DWR WUE Project related to:

- ☐ (e) implementation of Urban Best Management Practices
- ☐ (f) implementation of Agricultural Efficient Water Management Practices
- ☐ (g) implementation of Quantifiable Objectives (include QO number(s))
- ☐ (h) innovative projects (initial investigation of new technologies, methodologies, approaches, or institutional frameworks)
- ☐ (i) research or pilot projects
- ☐ (j) education or public information programs
- ☐ (k) other (specify)

20. Do the actions in this proposal involve physical changes in land use, or potential future changes in land use?

- ☐ (a) yes
- ☒ (b) no

If yes, the applicant must complete the CALFED PSP Land Use Checklist found at http://calfed.water.ca.gov/environmental_docs.html and submit it with the proposal.

**Consolidated Water Use Efficiency 2002 PSP
Proposal Part One
B. Signature Page**

By signing below, the official declares the following:

The truthfulness of all representations in the proposal;

The individual signing the form is authorized to submit the proposal on behalf of the applicant; and

The individual signing the form read and understood the conflict of interest and confidentiality section and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant.

R. Querbach
Signature

Ray Querbach, Manager
Name and title

3/1/2002
Date

PROPOSAL PART TWO

Project Summary

The Paradise Irrigation District (District) receives almost all of its water supply from surface runoff from the Little Butte Creek watershed. The firm yield of this surface water source is 7300 acre-feet per year, and an additional 200 acre-feet is available from one well. Current water demands are slightly greater than this firm supply, and additional water sources will be needed to supply an anticipated 20% growth in customer base. Water losses from leaking water mains have been the greatest contributor to the District's high percentage of water losses (32% in 1993). Current water losses have been reduced to approximately 16% due to a water main replacement program, but it appears that additional effort must be made to bring water losses down to an acceptable level (see Figure 1). The reduction in lost water will help to defer the need to construct expensive new facilities, and will reduce the amount of additional water supply sources needed to serve new development.

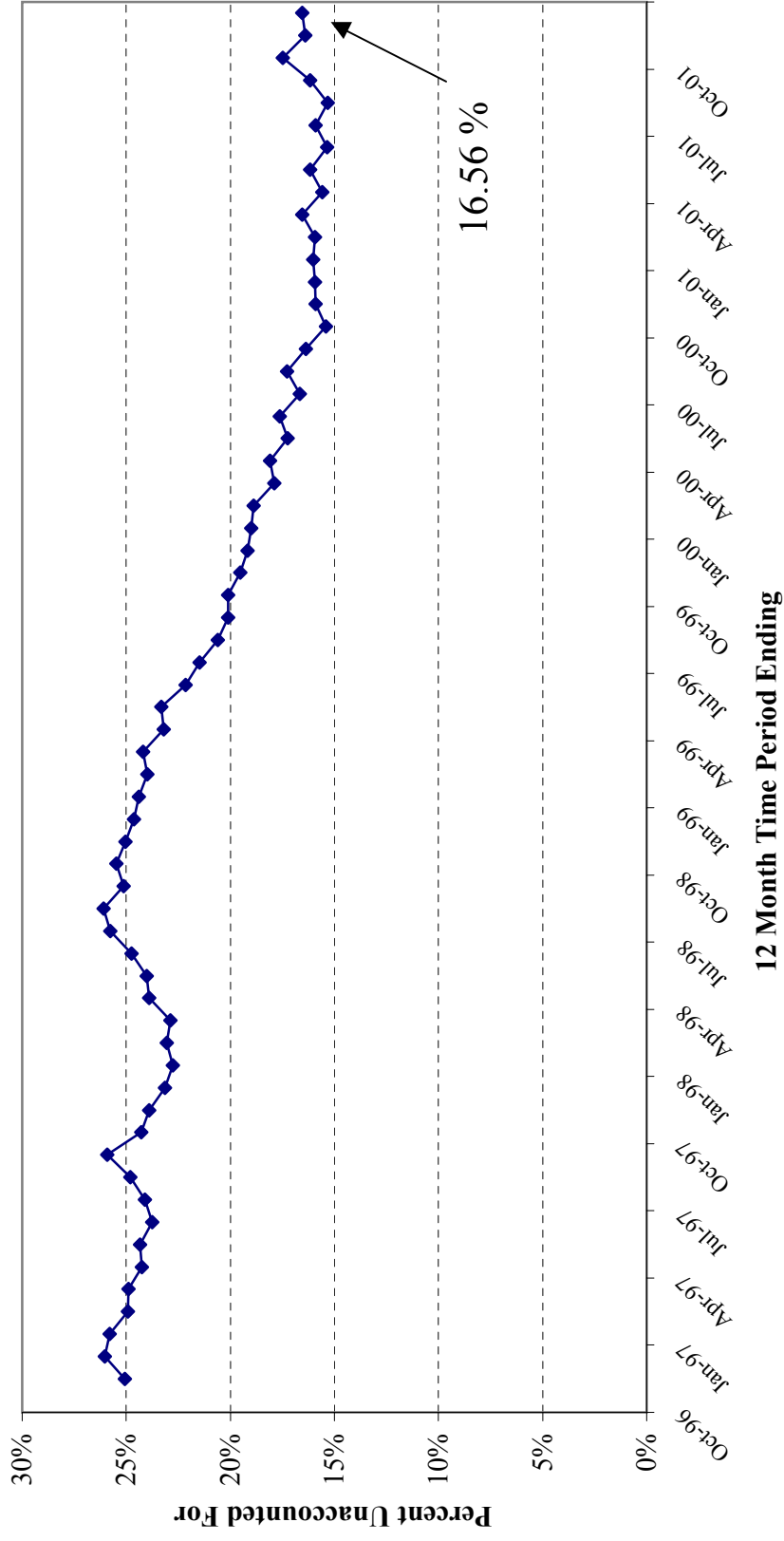
Two years ago the District started a limited leak detection project to determine if non-surfacing leaks were contributing to the high percentage of unaccounted for water. Prior to that time the District had so many surfacing leaks, there was no thought of looking for more leaks. The limited leak detection program provided information that has been used in preparing this grant application. The assumptions used in the benefit/cost analysis are based on this prior experience.

The proposed Leak Detection and Repair Program is designed to initially survey approximately 130 miles of water mains in the District. The majority of these mains are steel water mains constructed in the 1940's and 50's. The District maintains detailed leak records, and the proposed project will survey the mains with the worst leak record. It is anticipated that the survey will locate approximately 114 leaks that will be repaired by District forces. Once the original survey and repairs are complete, the District will survey the system approximately every two years to insure the original water savings are not diminished by subsequent leaks.

The total cost of the project is estimated to be \$402,000 including all labor, material, equipment, and overhead costs. The present value of project benefits is \$646,000, resulting in an overall benefit to cost ratio of 1.61. The District proposes to hire an experienced leak detection firm to perform the initial survey. District forces will complete the leak repairs. After the initial survey and repairs, the District will purchase its own leak detection equipment for surveys in subsequent years.

In addition to the capital cost savings, there is an additional cost savings by eliminating the cost of producing water that is lost from the system.

Figure 1. Unaccounted for Water
12 Month Time Intervals



A. Scope of Work: Relevance and Importance

1. Nature, scope and objectives of the project – the nature, scope and objectives of this project are described in the Project Summary.
2. Statement of critical local, regional Bay-Delta, State or Federal water issues – The Paradise Irrigation District must augment its water supply to meet current demands in dry years and to provide supplies for future anticipated growth. Recent studies have shown that the cost of augmenting water supplies is very expensive, and it appears that reducing water lost to pipeline leaks is a cost effective method of reducing these needs.

Butte County is a major focus for CALFED because of its abundant groundwater reserves (in the valley, not on the Paradise Ridge) and critical wildlife habitat. Butte County completed a Water Inventory and Analysis in 2001 using Prop. 204 funds. That analysis identified water supply problems in the Paradise Ridge area after one drought year similar to 1977.

In addition, the Butte Creek drainage area has been identified as a prime spring run salmon stream. Improved water management and water use efficiency will help maintain the improvements in that tributary to the Sacramento River. Finally, CALFED has adopted the California Urban Water Conservation Council's Best Management Practices for Urban Water Conservation. Distribution System Audits, Leak Detection and Repair is a BMP that has been shown to be cost effective throughout California.

B. Scope of Work: Technical/Scientific Merit, Feasibility, Monitoring and Assessment

1. Methods, procedures and facilities – For the past two years the District has performed limited leak detection work using both contractors and District personnel. District personnel have used equipment borrowed from the Department of Water Resources. The results of this limited work have convinced the District that a system-wide leak detection and repair program is cost justified. The detailed cost justification is shown on Table 1.
2. Task List and Schedule – A work schedule is shown on Figure 2. Projected costs for each task are shown on Table 1.
3. Monitoring and assessment – The progress of the project will be monitored by measurement of the miles of pipe surveyed, the number of leaks found and repaired, the estimated leak rate for each leak, and the

cost of leak repair. This data will then be used to determine if the project goals are being met. In subsequent years, surveys will be completed to determine how fast new non-surfacing leaks occur.

Data on leaks and water losses will be incorporated into the District's existing databases. The information is available in electronic format and can be provided to any interested party on request.

4. No plans are required for this project. A preliminary Specification for the leak detection contract is contained in Appendix 1.

C. Qualifications of the Applicants and Cooperators

1. The project will be managed by the following District employees:

Ray Auerbach, District Manager – Overall Project Management
John Price, Field Superintendent – Supervision of leak detection and repair

Resumes for these individuals are provided in Appendix 2.

2. External cooperators:

None

D. Benefits and Costs

1. Budget Breakdown and Justification – A detailed budget for the project is contained in Appendix 3.
2. Cost Sharing – No cost sharing is proposed for the initial survey and leak repair. Subsequent surveys and necessary leak repair will be totally funded by the District.
3. Benefit Summary and Breakdown – The proposed leak detection and repair program is expected to significantly reduce the amount of water lost due to pipeline leaks. Quantifiable benefits include the following:

Cost of water saved

Reduced amount of new capacity required to meet future water needs

A summary of these benefits expected to be derived is contained in Table 1.

4. Assessment of costs and benefits – the overall cost of the leak detection and repair program is \$402,000. The expected benefits over a 20-year project life are estimated at \$646,000, for a benefit/cost ratio of 1.61.

NOTE: Only funds for the first year of the project are requested in this application.

a. Major Assumptions:

The District has identified 130 miles of water mains for leak detection survey. PVC and asbestos cement mains have been excluded from the survey list due to the negligible leak rate on these mains historically. The anticipated results of the leak detection and repair program are based on the District's experience with limited leak detection work over the past 3 years. On the basis of that experience the District expects to find 0.88 'leaks' per mile surveyed, with approximately 70 percent of the detected leaks actually resulting in water savings (30 percent false positives). Repair of these leaks is expected to result in water savings of 1.99 gpm per mile.

The time for return to a rate of leak loss equaling the before-repair rate is assumed to be two years. The resumption of leaking is assumed to occur linearly over time. The average leak reduction rate, on an annual basis, has been computed as the average of the rate reduction at the beginning and end of the year.

The estimated cost of leak detection survey and repair are based on actual costs for these items from the District's experience.

Project benefits contain two components: savings on the incremental cost to treat additional water (chemical and pumping energy only), and the savings associated with not developing additional capacity (reservoir storage, pumping, and treatment). Capacity savings for pumping and treatment are based on the actual cost of construction for capacity in the District's existing pumping and treatment facilities. Reservoir storage capacity is based on the cost to develop additional firm yield, as determined by a feasibility study conducted by URS in 2001. The long term capacity savings for the project have been computed based on the minimum annual water savings for the twenty year period (year 19; 143 acre-feet).

- b. All costs and benefits in Appendix 1 are converted to present value.
- c. A six percent discount rate has been used.
- d. All monetary benefits are expected to accrue to the District. To the extent water is saved, this water will not be diverted from Little Butte Creek, and will be available for other uses downstream.
- e. This Proposition 13 Grant Project is locally cost effective as shown by the overall benefit/cost ratio of 1.61.

E. Outreach, Community Involvement and Acceptance

The District is working closely with the Butte County Department of Water and Resource Conservation and the Del Oro Water Company to investigate solutions to the water supply problems on the Paradise Ridge. A Memorandum of Understanding between these three agencies requires several public meetings each year to inform the public on the progress of this joint effort. See Appendix 4 for attached letter of support for this grant application.

CERTIFICATION STATEMENT

PROPOSITION 13 URBAN WATER CONSERVATION CAPITAL OUTLAY GRANT

I hereby certify that the Leak Detection and Repair project proposed in this application complies with the requirements of the Consolidated Water Use Efficiency 2002 Proposal Solicitation Package dated January 4, 2002. I further certify that the project is feasible from an engineering, construction and economic viewpoint.

Certified by:



Ray A. Auerbach

California Registered Civil Engineer No. 20236



Appendix 1. Preliminary Specification

SPECIFICATION
FOR
CORRELATOR-BASED
LEAK DETECTION SURVEY & PINPOINTING SERVICES

I. General

Paradise Irrigation District (PID) requests a proposal from Consultants for surveying and pinpointing water leaks using the latest procedures, methods and leak detection technology. The Consultant shall include the following equipment as a minimum: A sonic leak detection sound amplification instrument in conjunction with a transducer capable of 12VG (volts per “G”) sensitivity minimum output for survey (this equipment must be tested on a regular basis for sensitivity output). Consultant must use and have on job site during all pinpointing various sophisticated equipment including ground mics, computer based correlators, etc. for leak pinpointing. They also must have with each mobile unit, pipe tracing and box locating equipment. The equipment is to be operated by trained experienced professionals. The Consulting firm must have a minimum of three years expertise with this equipment in the leak detection business as outlined herein. A detailed report of leak locations, estimated GPM loss and area covered is to be supplied daily. A final report shall include: a summary of the project, survey review, area survey sheets with observations noted, sheets with data on each individual leak with a drawing of its location, and a conclusion.

II. Specifics

A. The first step in this survey will be to review the distribution maps of the portion of the PID system to be surveyed for familiarization of the pipe network and available appurtenances (valves, services, hydrants, etc.) to be used for contact points.

B. As the leak survey progresses, the Consultant shall determine the distance that even quiet leak sounds travel in various pipe sizes and pressure zones in each area of the PID system. This is to be done by slightly turning on fire hydrants, hose bibs, etc., creating a simulated quiet leak sound. Appurtenances in that area are then to be checked with a sound amplification instrument to see how far the simulated leak sound travels, thus determining how often the Consultant will make contact with appurtenances in a given section of the PID water distribution system.

C. The Consultant shall then conduct a comprehensive survey by making physical contact with all available main line appurtenances (valves, hydrants, etc.) and selected customer services. The Consultant shall use a sonic leak detection sound amplification instrument designed for this purpose with a transducer rated at a minimum sensitivity of 12VG (volts per “G”).

D. Contact is then to be made with pipe appurtenances at intervals no greater than three hundred fifty (350) feet where contact points are available and accessible, or at pre-determined distances as noted in Paragraph B (whichever distance is less). This allows for even quiet leaks to be located.

E. When normal contact points are not available or cannot be created within a reasonable distance as described in Paragraph D, Consultant shall use a sonic ground listening device making physical ground contact at intervals no greater than six (6) feet directly over the pipe. If excessive ambient noise precludes the effectiveness of the ground listening device in an area during daytime hours, Consultant shall schedule this portion of the survey for nighttime hours. Consultant shall pre-approve these situations with PID. (Sonic Ground Listening Instruments are to be used only when ground cover is pavement, cement or similar hard surface.)

F. When ground cover is not a hard surface, probe rods shall be used at ten (10) feet intervals when normal contact points are not available (as described in Paragraph D). A sound amplification instrument with 12VG (volts per "G") transducer minimum output is to be used on probe rods. Probe rods will be driven into the ground a minimum of six (6) inches directly over the pipe when ground conditions allow.

G. A detailed report of decibel levels at suspected leak sound locations and observations is to be compiled during the survey for reinvestigation and possible pinpointing at a later time. This reinvestigation is to increase the speed of the survey and should eliminate correlating on most false leak sounds.

H. All indications of leaks found during the survey are to be verified a second time, after which the leak shall be pinpointed with a computer based leak sound correlator when possible. Pinpointing leak locations through interpretation of sound intensity, either by ear, decibel metering, or other like methods, is not to be used when contact points are available for use with correlator. Each leak will be classified according to size (Gallons Per Minute) and hazard in order to aid PID in scheduling repairs.

Leak Classifications are as follows:

Class I. Any leak which is hazardous in terms of potential undermining, possibly resulting in surface collapse, encroachment and/or damage to nearby utilities, commercial or private properties or leaks severe enough to warrant immediate repair.

Class II. All leaks that display water losses significant enough to be monitored on a regular repair schedule.

Class III. Relatively small leaks that should be repaired as workload permits.

I. The equipment used shall not normally require valves to be operated during surveying and pinpointing. However, on occasion, services or valves may be operated to eliminate service draw noises or to change velocity noise.

J. The correlator equipment used is to have the capability of prompting the operator to input the variables when different pipe sizes and/or pipe materials are encountered in the same span to be investigated. The correlator shall have the capability of correlating up to four (4) various pipe sizes and types at one time in a given span. To insure effective performance in all field environments encountered in the PID distribution system, (i.e., traffic noise, draw, pump operation, industrial noise, etc.,) the correlator equipment shall provide twelve (12) multi-range High and Low Pass filters and digitally controlled variable band pass filters between 72Hz and

7.1kHz, providing up to fifty three (53) selectable filter ranges, full operating frequency range (all pass): 10Hz-20kHz. If alternate correlating equipment is proposed, Consultant shall specify the equipment to be utilized.

K. The Consultant shall furnish to PID a daily leak report as well as a final report within seven (7) days from end of the project. The Final Report is to include:

1. Executive summary showing individually recorded time for correlating, surveying, and other time spent on the project. This summary also shall include footage covered, approximate GPD loss, types of leaks found, quantity of leaks found, and remarks pertinent to the survey.
2. Survey Review explaining the procedures and methods used during this study.
3. Area Survey reports indicating pipe line areas covered, amount and type of contact points used, leak sound locations with decibel levels, approximate time spent, and observations of water system irregularities. A separate survey sheet is to be used for areas covered with only a ground listening device or probe rod, indicating ground cover.
4. Leak Report with detailed drawing showing each leak location that is pinpointed, the type of leak found, approximate time spent pinpointing, an estimate on the GPM lost and computer justification when applicable. (This same leak report shall be supplied daily to PID when leaks are found.)

L. Whenever PID repairs any leaks detected by Consultant prior to completion of the field work, Consultant shall resurvey that section of the system, to be sure no very quiet leaks are missed due to an overpowering noisy leak sound.

M. The Consultant shall furnish a trained field technician, leak detection instruments, equipment and tools to complete the survey and leak pinpointing.

N. The Consultant shall perform their best effort to pinpoint all existing leaks.

APPENDIX 1 SPECIFICATIONS FOR LEAK DETECTION PROJECT

PROJECT DESCRIPTION

Paradise Irrigation District (PID) serves a population of 26,000 with approximately 8,900 residential services, and 840 commercial, industrial and irrigation services.

PID provides water from a surface water source. Water mains are generally buried having from two to four (2 to 4) feet of cover. The pressure generally varies from 40 PSI to 125 PSI.

The system is one hundred (100) percent metered. The daily water production ranges from four (4) million gallons per day (MGD) to fifteen (15) MGD. Unaccounted for water likely exceeds twenty five (25) percent during low usage periods.

The average distance between mainline valves is approximately one thousand (1,000) feet. The average distance between service connections varies between one hundred (100) and three hundred (300) feet. The valve box lids are generally accessible for easy removal. The average distance between fire hydrants is generally four hundred to one thousand (400 to 1,000) feet. The age of these hydrants is mostly over thirty (30) years.

The portion of the water system to be surveyed is approximately twenty (20) percent of the PID system and was installed over thirty (30) years ago. It consists of about thirty nine (39) miles of tar dipped and wrapped steel piping, ranging from three (3) inches to thirty (30) inches in diameter.

The following is a summary of pipe sizes and length as measured from PID's master water line maps which are continually updated. Private piping, fire hydrant laterals and service laterals are not included.

DISTRIBUTION SYSTEM TO BE SURVEYED:

SIZE	APPROXIMATE MILES OF PIPE TO BE SURVEYED
2" - 3"	4
4"	26
5"	1
6"	45
8"	19
10"	5
12"	12
14"	1
16"	5
18"	2
20"	2
22"	1
24" through 42"	7
TOTAL	<u>130 miles</u>

Appendix 2. Resumes

RESUME

JOHN H. PRICE

EXPERIENCE SUMMARY

John Price is the Field Superintendent for the Paradise Irrigation District and has 30 years experience in construction and construction management. Mr. Price has considerable experience in underground construction with an emphasis on water main, fire hydrant and other water system component installation and maintenance.

DETAILED EXPERIENCE

Paradise Irrigation District

- **Superintendent** of the Paradise Irrigation District, with nine years of experience. Responsible for the day-to-day operations of the District's water distribution system consisting of approximately 170 miles of pipeline and nearly 10,000 water meter services.
- Supervise a 20-person crew engaged in system operation, maintenance and construction, facility upkeep, fleet vehicle maintenance, meter reading, etc.
- Develop and oversee the District's Capital Improvement program for pipeline replacement averaging about 9,000 feet of pipe replacement yearly.
- Develop and maintain records documenting systems repairs to include water main leaks, service pipe leaks and fire hydrant installation and repair and the District's leak detection program.
- **Utility Foreman** of the Paradise Irrigation District with eight years of experience. Responsible for installing and maintaining the District's water pipe system.
- **Equipment Operator** for the Paradise Irrigation District with five years' experience. Operated heavy equipment during the installation and maintenance of the District's water distribution system.

City of Santa Cruz

- **Construction Specialist** for the City of Santa Cruz Street Department with seven years' experience. Operated equipment and supervised crews during the construction and maintenance of City streets and drainage systems. Built roads, curbs, gutters, sidewalks, and installed storm drain systems and piping.

Education

- Associate of Arts Degree in Drafting Technology.
- U.S. Army Signal School, Fort Monmouth, New Jersey, Fixed Plant Carrier Equipment Repair School.

RESUME

RAY A. AUERBACH

EXPERIENCE SUMMARY

Ray Auerbach is the Manager of the Paradise Irrigation District and has 35 years experience in water resources finance, administration, engineering, operations and intergovernmental relations. Mr. Auerbach has a strong background in engineering and project management for various types of projects, including pipeline replacement.

DETAILED EXPERIENCE

Paradise Irrigation District

- Manager of the Paradise Irrigation District from June 1998 to present. Under policy direction of a five-member elected Board of Director is responsible for all District functions including engineering, finance, operations and maintenance and intergovernmental and public relations.
- Secured a \$493,000 grant from the Department of Water Resources to investigate the feasibility of additional water supply options.
- Managed and participated in the preparation of the 2000 Urban Water Management Plan.
- Revised financial and management reports submitted to the Board of Directors.
- Participated in Drafting the Memorandum of Understanding between the District, the Butte County Department of Water and Resource Conservation and the Del Oro Water Company.

Raymond C. Miller, P.E. and Roberson and Associates

- Associated with Raymond C. Miller and Don Roberson from June 1997 to June 1998.
- Provided contract management services to the City of San Juan Capistrano and the Tri-Cities Municipal Water District.

Capistrano Valley Water District

- General Manager from July 1987 to June 1997. Assistant General Manager/District Engineer from January 1986 to June 1987.
- Reduced unaccounted for water from over 10% to 5%
- Established a replacement program to replace the District's aging infrastructure.
- Secured additional water capacity in a new regional water supply pipeline.

City of Anaheim Public Utilities Department

- Served in several positions between December 1968 and December 1985, including nine years as Water Engineering Manager.
- Responsible for budgeting, planning, engineering and contract engineering for Orange County's largest retail water agency.

Los Angeles County Flood Control District

- Civil Engineering Assistant and Senior Civil Engineering Assistant from July 1966 to November 1968.

Irvine Ranch Water District Board of Directors

- Member of Board of Directors from December 1979 to June 1998.

PROFESSIONAL AFFILIATIONS

- American Water Works Association
- American Society of Civil Engineers

PROFESSIONAL REGISTRATION

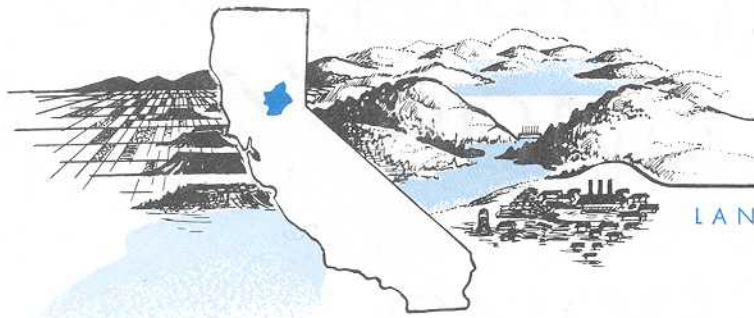
- Registered Civil Engineer in California, No. 20236

EDUCATION

- East Los Angeles College – Associate of Arts Degree, 1964
- California State University at Los Angeles – Bachelor of Science Degree, Civil Engineering, 1966
- Numerous training sessions and seminars in supervision, management, public relations, etc.

Appendix 3. Project Budget (See Table 1)

Appendix 4. Letters of Support



Butte County

LAND OF NATURAL WEALTH AND BEAUTY

WATER AND RESOURCE CONSERVATION

2279 DEL ORO AVENUE, SUITE A • OROVILLE, CALIFORNIA 95965-3396
(530) 538-4343 • FAX: (530) 538-3807 • bcwater@buttecounty.net

February 26, 2002

ED CRADDOCK
Director

California Department of Water Resources
Office of Water Use Efficiency
P.O. Box 942836
Sacramento, CA 94236-0001
Attention: Marsha Prillwitz

RECEIVED

FEB 26 2002

PARADISE IRRIGATION
DIST

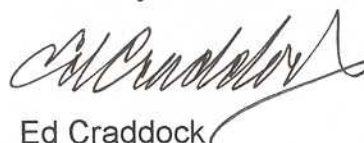
Dear ^{Marsha} Ms. Prillwitz

I'm writing to support the application for a Proposition 13 Urban Water Conservation Capital Outlay Grant for Paradise Irrigation District (PID). Butte County's Water Inventory and Analysis, funded under Proposition 204, has shown that the Paradise Ridge can face water supply shortages during one severe drought year similar to 1977. The need for additional water supplies on the Paradise Ridge led to the execution of a Memorandum of Understanding (MOU) between the County, Del Oro Water Company and PID in January 2001. The MOU helps ensure collaborative efforts in creating water supplies through efficient water management.

In my many years with the Department of Water Resources, it became apparent that leak detection and repair was one of the most cost-effective urban water management practices. PID's efforts toward reducing losses in their system have been successful over the past two decades, and upgrading their program is important to reduce their "unaccounted for water" further. By improving their program, PID should be able to reduce their system losses substantially during this decade nearer to the statewide average.

It is critically important that citizens in area of origin counties are protected from water shortages, while millions of acre-feet are being stored for use elsewhere in California.

Sincerely


Ed Craddock